

## SGIG Consumer Behavior Study

### Detroit Edison Company

*SmartCurrents<sup>SM</sup> Smart Home Project*

#### Overview

Detroit Edison Company (DECo) is a summer peaking investor-owned electric utility with ~2.1 million customers in its ~7,600 square mile service territory that covers southeast Michigan. DECo's SGIG project (SmartCurrents<sup>SM</sup>) includes a consumer behavior study that evaluates customer acceptance and response to a three-period TOU rate with a CPP overlay, enabling technologies and information feedback. The utility is targeting residential customers in the part of its service territory where AMI has been installed for least six months prior to the commencement of recruitment into the study. Customers in this part of DECo's service territory generally use more electricity and have higher incomes than the utility's average residential customer population.

#### Consumer Behavior Study Features

**Goals and Objectives**—This study focuses on evaluating the timing and magnitude of changes in residential customers' peak demand and energy usage patterns due to exposure to a three period TOU rate with a CPP overlay, use of enabling control technologies and access to various information feedback technologies. DECo is also interested in learning about customer acceptance of both the rate and the various types of enabling control and information feedback technologies.

**Treatments of Interest**—Rate treatments include the implementation of a three-period TOU rate with a CPP overlay (TOU w/CPP) during the peak period (weekdays and non-holidays 3 – 7 p.m.). The shoulder period encompasses the hours between 7 a.m. and 3 p.m., and between 7 and 11 p.m., weekdays and non-holidays. Critical peak events are announced with day-ahead notice to participating customers. Up to 20 critical peak events can be called each year.

Control/information technology treatments include the deployment of IHDs and PCTs. In addition, all customers participating in the study receive web portal access, customer support and a variety of education materials.

DECo rate levels (¢/kWh)

Period	TOU w/CPP
Off-Peak	4.0
Shoulder	7.0
Peak	12.0
Critical Event	100.0

**Experimental Design**—The study design is a randomized controlled trial with denial of treatment for the control group. A simple random sample of AMI-metered residential customers in the service territory who meet certain eligibility criteria will receive an invitation to opt in to the study where participating customers could receive one of several treatments, with the understanding that this treatment is limited in supply. Customers who opt in are then screened and surveyed to ensure qualification to potentially receive a treatment.

Those who self-identify as having central air conditioning are randomly assigned either to a control group or to receive an offer to opt in to one of four studies, each of which takes service under a TOU w/CPP rate design and includes an offer of 1)no technology, 2) an IHD only, 3) a PCT only, 4) or both a PCT and IHD.

**Detroit Edison Company** (continued)

Those who self-identify as not having central air conditioning are randomly assigned either to a control group or to receive an offer to opt in to one of two studies, each of which take service under a TOU w/CPP rate design and include an offer of either no technology or an IHD.

**Enrollment Incentives and Retention Activities**—Customers are provided with web access to shadow billing comparisons to familiarize them with the financial implications of time-based rates relative to their old flat rate.

**Sample Size Requirements**—Sample size requirements are shown in the table below.

**Sample Size Requirements**

Presence of Central	No IHD	IHD	Control
w/o CAC	375	375	375
w/CAC	375	375	375

**Key Milestones**

Key Milestones	Target Dates
Study begins	January 2012
Interim evaluation report submitted	August 2013
Study ends	December 2013
Final evaluation report submitted	March 2014

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